

A NEW *CAECUM* FROM PUERTO RICO AND THE VIRGIN ISLANDS¹

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ABSTRACT

A new species of *Caecum* is described from the Puerto Rico and Virgin Island platform. The new species appears to be confined to this island group in contrast to the wide distribution of most species of the Caecidae. Scanning electron microscope photographs illustrate the microsculpture of the new gastropod and of two closely related species, *C. imbricatum* and *C. floridanum*.

In June 1961, Raymond B. Manning and I were on St. John, Virgin Islands, to collect animals living in *Thalassia testudinum*, the common marine turtle grass. Before leaving the island, a 1-liter bottom sample was taken in a depth of 1.5 m. This location was near the head of the bay on open sandy bottom near *Thalassia* and scattered reef corals. Micromollusks were abundant in the sample, and one of the most common was a species of *Caecum*. This species was found to be figured and briefly described by Warmke & Abbott (1961) as *Caecum insigne* Folin, 1867. The identification seemed correct, but two years later I was able to examine the types of *C. insigne* at the Laboratoire de Malacologie in Paris. Both *C. insigne* and *C. coronatum*, another species described in the same paper from the same locality, are conspecific with *C. imbricatum* Carpenter, 1859. The Virgin Island specimens, however, belong to a different species. It appears that this species has never been named or adequately described.

Additional material from Puerto Rico was later submitted to me by Germaine Warmke. Collections from various parts of the Caribbean have given some indication of its geographical distribution, mostly by negative evidence. The species appears to be confined to Puerto Rico and the northern Virgin Islands, although admittedly the Caecidae are poorly known throughout the West Indian area. However, beach drift and shallow-water bottom samples from St. Croix, Haiti, Jamaica, the lower Bahamas, and the lesser Antilles have been examined without finding the new species. Since this *Caecum* is apparently restricted to a small group of islands, an appropriate name and a full description are given below.

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***Caecum insularum*, new species**

Caecum insigne, Warmke & Abbott, 1961: 68, fig. 15 F, not Folin, 1867: 52-53.

Description.—The shell of the adult *C. insularum* is only slightly curved, and tapers evenly from the anterior to the posterior end. The septum is even with the posterior end of the shell. The mucro is strong and forms a right-angled triangle when seen from the side; it forms an equilateral triangle when seen from the ventral aspect. The shape of the mucro varies a little from specimen to specimen. The aperture is circular. It is not expanded, and there is no terminal varix. The terminal annular rib is contracted, narrow, smooth, and is often colored brown. Color in the remainder of the shell is somewhat variable. It is usually white, sometimes with indistinct banding. Many specimens are tinged with brown, either near the aperture or suffused over the entire shell.

There are three orders of sculpture. The strongest is the annular ribs. They are low, flattened, and very close together. They number about 35 to 50 in the adult. Longitudinal sculpture is made up of poorly defined low ribs with wide interspaces. They are weak, irregular, and often difficult to observe. The third type of sculpture consists of microscopic longitudinal striations.

The protoconch was not observed. The juvenile second stage varies greatly in size; some shells are short and thick while others are long, slender, and attenuated. The sculpture of the second stage is similar to that of the adult, but the mucro is more slender and pointed.

The operculum is brown, circular, and multispiral. The outer face is concave in dry specimens, and shows more than ten whorls. The inner face is convex and smooth, showing no trace of the spiral turns. The operculum of one typical adult specimen measured 0.52 mm in diameter.

Size of mature specimens varies considerably. Two specimens representing the extremes in size are contrasted below.

	Large	Small
Total length	3.36 mm	2.36 mm
Anterior diameter	0.76 mm	0.55 mm
Posterior diameter	0.54 mm	0.42 mm

Material.—Type-material was placed in the following institutions: United States National Museum (USNM); Academy of Natural Sciences of Philadelphia (ANSP); American Museum of Natural History (AMNH); Museum of Comparative Zoology (MCZ); and the Museum of the Rosenstiel School of Marine and Atmospheric Sciences of the University of Miami (UMML).

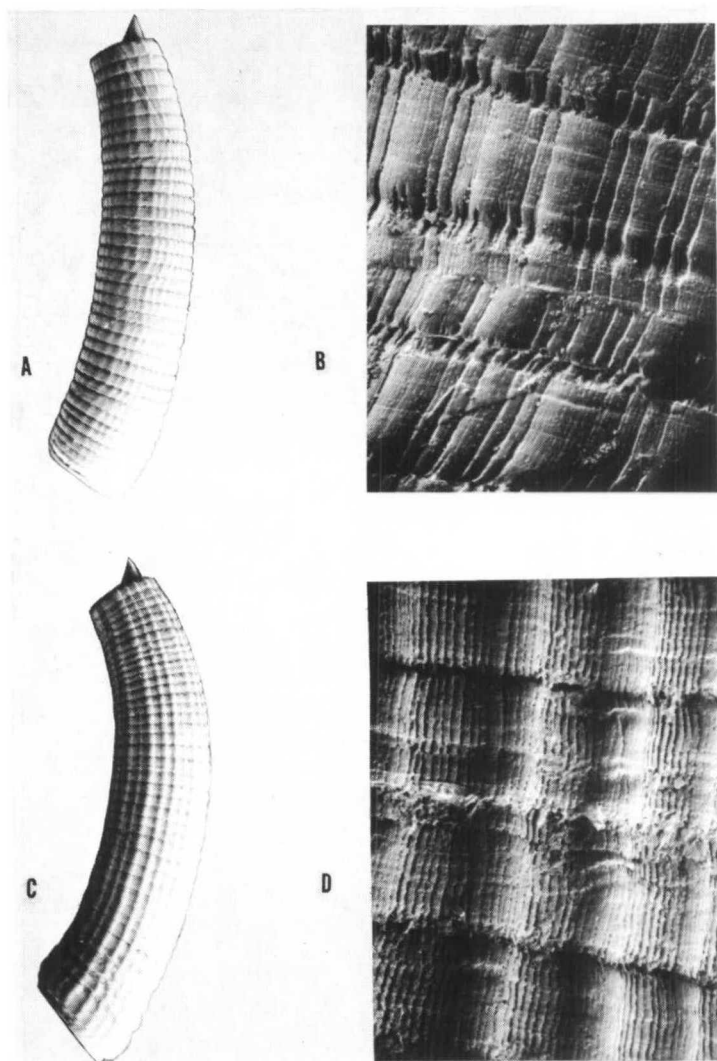


FIGURE 1. West Indian Caecidae: A, *Caecum insularum*, new species, $\times 19$; B, microsculpture of *C. insularum*, $\times 190$; C, *Caecum imbricatum*, $\times 20$; D, microsculpture of *C. imbricatum*, $\times 200$.

Type-Specimens.—**HOLOTYPE**: Lesser Lameshur Bay, St. John, Virgin Islands, 7 June 1961. Measurements: total length, 3.28 mm; anterior diameter, 0.68 mm; posterior diameter, 0.48 mm. USNM No. 679178.

PARATYPES: Lesser Lameshur Bay, St. John, Virgin Islands. 7 adults

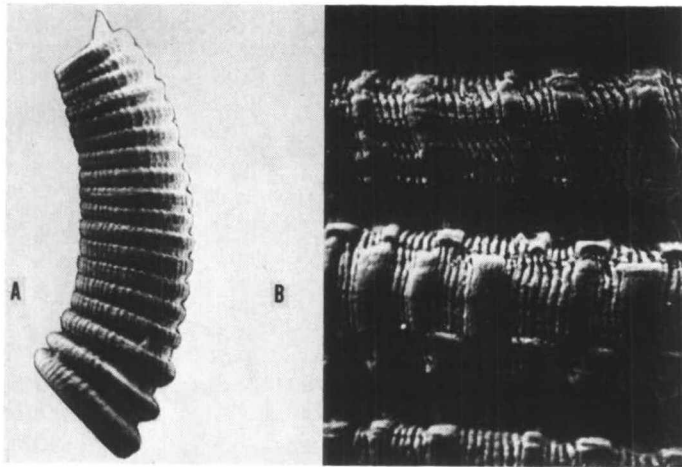


FIGURE 2. West Indian Caecidae: A, *Caecum floridanum*, $\times 23$; B, micro-sculpture of *C. floridanum*, $\times 190$.

and 5 juveniles, USNM No. 679179. 7 adults and 3 juveniles, ANSP No. 315477. 8 adults and 3 juveniles, MCZ No. 271305. 7 adults and 3 juveniles, AMNH No. 147965. 6 adults and 8 juveniles, UMML No. 30:3203. More than a hundred paratypes from this locality, many worn or broken, have been kept by the author. West coast of Puerto Rico, 29 specimens, G. L. Warmke.

Type-Locality.—Open sandy bottom at the head of Lesser Lameshur Bay, St. John, Virgin Islands, depth, 1.5 m.

Remarks.—*Caecum insularum* is distinguished from other western Atlantic species of *Caecum* by its slight degree of curvature, absence of a terminal varix, strong triangular mucro, and glistening appearance due to the fine longitudinal striae.

The type-specimens of *C. insigne* and *C. coronatum* were collected in Jamaica, an island apparently outside the range of *C. insularum*. The specimens were probably picked out of the same sample, for those named *C. coronatum* were in good condition, while those named *C. insigne* were worn and in poor condition. They were all *C. imbricatum* Carpenter, a widespread west Indian species.

C. imbricatum appears to be the closest relative of *C. insularum*. The following characters can be used to separate the two species. *C. imbricatum* is more strongly curved, has stronger longitudinal ribs, and terminates with a varix around the aperture; *C. insularum* has no varix. Worn or immature specimens are sometimes difficult to identify. *C. imbricatum* has more nu-

merous and stronger longitudinal striae, but this feature is difficult to distinguish through a stereoscopic microscope.

C. insularum might also be confused with *C. floridanum* Stimpson, 1851, but the resemblance is weaker. *C. floridanum* has strong annular ribs with deep interspaces. The last two or three ribs are larger and well separated from the others. The last one forms a strong terminal varix. The septum is recessed, and the mucro projects up from this like a spike. Longitudinal striae are very well developed. Both *C. floridanum* and *C. imbricatum* are widespread throughout the West Indian region from Florida to South America.

C. insularum appears to be restricted to shallow, warm, oceanic waters surrounding a small group of islands. The Puerto Rico–Virgin Islands platform is an elongate structure aligned in an east-west direction from 64°08'W on the east to 67°27'W on the western end. This includes the islands of Puerto Rico, Vieques, Culebra, several small islands near Culebra, and all of the Virgin Islands except St. Croix. The platform is separated from the lesser Antilles by Anegada Passage with depths of more than 2000 m. St. Croix is separated from Puerto Rico by depths approaching 1800 m and from the remainder of the Virgin Islands by depths ranging up to 4000 m. In the west, Mona Passage between Puerto Rico and Hispanola is not as deep, but most of the passage has depths exceeding 400 m. Three small islands (Mona Island is the largest) and several banks occupy part of the area, but the main passage is more than twenty nautical miles across, with depths exceeding 360 m.

C. insularum may well have been derived from the much more widespread *C. imbricatum*. Apparently, *C. insularum* has a much reduced, or possibly even absent, pelagic larval stage. This, and a preference for quite shallow water, has kept it confined to a relatively small area. Depths of the water surrounding the Puerto Rico–Virgin Island platform are such that they would effectively prevent migration during periods of lowered sea level due to glaciation during the Pleistocene.

ACKNOWLEDGMENTS

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SUMARIO

UN NUEVO *Caecum* DE PUERTO RICO Y LAS ISLAS VÍRGENES

Una nueva especie de *Caecum* es descrita procedente de la plataforma de

Puerto Rico y las Islas Vírgenes. La nueva especie parece estar confinada a este grupo de islas en contraste con la amplia distribución de la mayoría de las especies de Caecidae. Fotografías hechas con el microscopio electrónico "scanning" ilustran la microescultura del nuevo gasterópodo y de dos especies muy relacionadas con ella, *C. imbricatum* y *C. floridanum*.

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